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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/529,778	07/17/2000	MARINUS MARIAS BOONE	BO41592	3723
466	7590	03/07/2005	EXAMINER	
YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202			NI, SUHAN	
			ART UNIT	PAPER NUMBER
			2643	

DATE MAILED: 03/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/529,778	BOONE ET AL.
	Examiner	Art Unit
	Suhan Ni	2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 14 July 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 12-70 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 12-16, 21, 22 and 27-70 is/are rejected.
- 7) Claim(s) 17-20 and 23-26 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date. _____.   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|   | 6) <input type="checkbox"/> Other: _____.                                   |

**DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission for RCE filed on 07/14/2004 has been entered.
2. This communication is responsive to the applicant's amendment filed on 07/14/2004.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) The invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 12-16, 21-22, 34-37 and 42-44 are rejected under 35 U.S.C. 102(b) as being anticipated by Zwicker et al. (U. S. Pat. - 4,773,095).

Regarding claims 12 and 34, Zwicker et al disclose a hearing aid, comprising an array of microphones (M1, M2, M1', M2'), each of microphones of said array producing microphone output signal; means for converting a first subset of output signals to a left array output signal (input of 19); means for converting a second subset of output signals right array output signal (input of 20); and left and right transmissions paths (30, 32), each carrying corresponding one of the left and right array output signals to a corresponding ear of the user; wherein each means for converting acts on corresponding said subset of microphone output signals so that the left and

right array output signals correspond two distinct main sensitivity directions (inherently form two frontal directional sensitivity direction by M1, M2 or M1', M2') that lie at an angle to one another.

Regarding claims 35-36, Zwicker et al further disclose the hearing aid, wherein each of the microphones is omni-directional.

Regarding claims 37, Zwicker et al further disclose the hearing aid, wherein each of the main sensitivity directions also lies at an angle to a main axis of the array (Fig. 1).

Regarding claims 13-15 and 42-44, Zwicker et al further disclose the hearing aid, wherein at least part of the array is mounted on an arm (9, 10) of a pair of spectacles as claimed (Fig. 1).

Regarding claims 16 and 21-22, Zwicker et al further disclose the hearing aid, wherein each of the left and right summing structures comprises summing device (23, 25) receiving as inputs weighted versions of microphone output signals produced by corresponding weighting factor devices (13, 14 or 13', 14') as claimed.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 27-33, 38-41 and 45-70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zwicker et al. (U. S. Pat. - 4,773,095).

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Regarding claims 27 and 38, Zwicker et al. do not clearly teach that each means converting operates a frequency-independent manner as claimed. Since Zwicker et al. do not specially restrict the frequency response of both frontal paths, and providing wideband frontal paths or channels for a hearing aid is very well known in the art, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide suitable wideband frontal paths for hearing aid as an alternate choice, in order to provide a wideband hearing aid for a special group of users.

Regarding claims 45, 49-51, 58 and 62-64, Zwicker et al disclose a hearing aid, comprising an array of microphones (M1, M2, M1', M2'), each producing microphone output signal (Fig. 3); left and right summing structures (23, 25), each receiving as inputs subset of the microphone output signals, each being constructed so as to generate left and right array output signals (input of 19, 20), respectively; left and right transmissions paths, each carrying a corresponding one of the left and right array output signals to corresponding ear of the user (30, 32); respective summing structures acts on its subset of microphone output signals so that the left and right array output signals correspond to two distinct main sensitivity directions (inherently form two frontal directional sensitivity direction by M1, M2 or M1', M2') that lie at an angle to one another. But Zwicker et al. do not clearly teach that the array output signals include low, mid, and high audio frequency components as claimed. Since Zwicker et al. do not specially restrict the frequency response of both frontal paths, and providing wideband frontal paths or channels for a hearing aid is very well known in the art, it therefore would have been obvious to one skilled in the art at the time the invention was made to provide suitable wideband frontal

paths for hearing aid as an alternate choice, in order to provide a wideband hearing aid for a special group of users.

Regarding claims 29-31, 39, 46-47, 52, 59-60 and 65, Zwicker et al further disclose the hearing aid, wherein each of the microphones is omni-directional.

Regarding claims 28, 48 and 61, Zwicker et al further disclose the hearing aid, wherein each of the main sensitivity directions also lies at an angle to a main axis of the array (Fig. 1).

Regarding claims 32-33, 40-41, 53-57 and 66-70, Zwicker et al further disclose the hearing aid, wherein at least part of the array is mounted on an arm (9, 10) of a pair of spectacles as claimed (Fig. 1).

#### *Allowable Subject Matter*

5. Claims 17-20 and 23-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### *Response to Amendment*

6. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

#### *Conclusion*

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Suhan Ni** whose telephone number is (703)-308-9322, and the number for fax machine is (703)-305-9508. The examiner can normally be reached on Monday

through Thursday from 9:00 am to 7:30 pm. If it is necessary, the examiner's supervisor, **Curtis Kuntz**, can be reached at **(703) 305-4708**.

8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (**PAIR**) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov/>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

9. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the group receptionist whose telephone number is **(703) 305-3900**.

February 26, 2005

  
SUHANI NI  
PRIMARY EXAMINER